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# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE JANUARY 26, 1946

TECHNOLOGY DEPT.

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JAN 29 1946

DETROIT



The "Snake"  
See Page 52

A SCIENCE SERVICE PUBLICATION



**TODAY-A complete radio set for less than  
half the cost of the tubes alone in 1923!**

- Today you can buy a six-tube table model radio for about \$25. A little over twenty years ago the six tubes alone cost \$54-nine dollars apiece.

Think of it—from \$9 to 80¢. You can buy *eleven* of these more powerful, longer-lasting radio tubes today for what you used to pay for only *one*!

This was brought about through RCA's combination of research, engineering skill, manufacturing efficiency and our American philosophy of making something *better—for less*.

Such progress means far more than simply a saving of \$8.20 on every radio tube. It means that radio has been

brought within the easy reach of practically everyone in this country.

There are now *fifty million* more radios in America than there were twenty years ago. Almost everyone depends upon broadcasting in some measure for entertainment, news, education.

Research and pioneering at RCA Laboratories contributed many of the scientific advances that so greatly improved and extended the services of radio to the American people.

*Radio Corporation of America, RCA Building,  
Radio City, New York 20, N. Y. . . Listen to  
The RCA Victor Show, Sundays, 4:30 P. M.,  
Eastern Time, over the NBC Network.*



The new 1946 RCA Victor Table Model (56X) costing about \$25. With our civilian production increasing, you can again look to RCA for the finest instruments of their kind that science has yet achieved. The principle of making it better—for less—applies to RCA Victor radios, television sets, Victrola radio-phonographs . . . every product bearing the RCA label.



**RADIO CORPORATION of AMERICA**

EMBRYOLOGY-GENETICS

# Unborn Mice Have Young

**Transplantation experiment is expected to aid medical research, including cancer search. Could be repeated for any number of successive generations.**

► UNBORN female mice, that never lived to see the light of day, have nevertheless become the mothers of new broods of mice, in a unique group of experiments performed by Dr. W. L. Russell and Patricia M. Douglass at the Roscoe B. Jackson Memorial Laboratory in Bar Harbor, Maine, and reported in the *Proceedings of the National Academy of Sciences*. The new transplantation method is expected to aid medical research, especially on hereditary factors in cancer.

The dead embryo mice were enabled to produce living offspring through the transplantation of their still-immature ovaries into the bodies of other female mice, whose ovaries had just been removed. The transplanted organs were accepted by the bodies of the foster-mothers and in a relatively short time were in reproductive condition. When the foster-mother mice were mated they produced litters of young, in normal fashion.

To make sure that the new mice really developed from eggs produced by the transplanted ovaries, two strongly contrasting genetic strains of mice were used

in the experiment, giving easily detected differences in color and coat character between the "donor" embryos and the "host" foster-mothers. The offspring plainly showed their kinship to the strain to which the sacrificed embryos had belonged.

Dr. Russell and Miss Douglass point out several ways in which their work may yield scientifically valuable results. It should produce data of value in deciding relative importance of heredity and maternal environment, and also give opportunities to study the effects of hormones, or internal gland secretions, in prenatal development.

Finally, the experimenters point out, "There is no reason to suppose that the method could not be repeated for any number of successive generations, thus leading to an indefinite number of unborn direct female ancestors. This possibility should be of interest to investigators in several fields of research. In studies of the mammary tumor agent, for example, mice could be obtained whose female ancestors, for any number of generations, had not been nursed."

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amount of penicillin in the wound will be reduced by penicillin destroyers below the level needed to destroy susceptible germs.

In a search for a way to overcome this situation, the scientists tested over 200 chemicals and antibiotic agents for their ability to destroy the germs that destroy penicillin. The carbolic acid relative, parachlorophenol, was the most effective of the antiseptics tested. It does not injure the tissues or cause toxic symptoms, can be used with penicillin and can be used as a liquid or as an ointment on gauze dressings.

Results of tests of other substances, the scientists state, will be reported later.

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ENGINEERING

## 26 Horsepower Engine Built on New Principle

► A NEW 26-HORSEPOWER engine for light automobiles, built on a radically new principle from thin sheet-steel stampings instead of heavy forgings and castings and weighing only 59 pounds, has been announced by Crosley Motors, Inc. It is low in first cost, economical to operate, and can drive the new 1000-pound Crosley car at a top speed of 60 miles an hour. At a 35-mile speed it can operate 50 miles on one gallon of gas.



MEDICINE-CHEMISTRY

# Protects Penicillin

**Phenol compound helps the drug do a better job in fighting germs in infected wounds. Can also be used as a liquid or as an ointment on dressings.**

► PENICILLIN can do a better job of fighting germs in infected wounds when it is protected by a chemical related to carbolic acid, it appears from a report by Dr. Frank L. Meleney, Miss Balbina A. Johnson and Miss Frances Colonna of New York and Capt. Edwin J. Pulaski, of the Army Medical Corps. (*Journal, American Medical Association*, Jan. 19)

Surprising as it may be to those who have looked on the mold chemical as almost a cure-all for germ diseases, penicillin is powerless against some germs and its anti-germ power is destroyed by

substances these germs produce.

Wounds on the battlefield or in peace-time accidents may become infected with these penicillin destroyers and at the same time with germs that are ordinarily susceptible to penicillin. The problem for the surgeon is to determine which germs are present and, if there are penicillin destroyers, to get rid of them so the penicillin can act on the others. If this is not done, and penicillin is used in the wound in ordinary amounts, there is the danger that germs ordinarily susceptible to penicillin will develop penicillin resistance because the

**COMPACT ENGINE**—The new 26-horsepower Crosley engine is built on a radically new principle from thin sheet-steel stampings and weighs only 59 pounds. Holding the engine easily on his lap is Powel Crosley, Jr., president of Crosley Motors, Inc.

The cylinder walls of the new engine are of chrom-molybdenum steel, and are only one-sixteenth of an inch thick. The engine parts are all stamped from thin metal sheet and tubes crimped together, then braced into a single piece by melting pure copper into all the joints by an hour's baking in a hydrogen or gas furnace. The entire engine is thus precision-formed, machined to exact dimensions and is ready to go to work. Its cost is a small fraction of that of a standard engine, it is claimed.

The low fuel consumption of the new

engine, the makers state, is a direct result of the thin walls which permit efficient cooling of the cylinders. It operates at the high speed of 5,000 revolutions a minute. Its four cylinders are only two and one-half inches in diameter with a two-and-a-quarter inch stroke. The pistons are cast of aluminum alloy and the crankcase is an aluminum casting. The cooling system holds but five quarts of water, but the pump forces 12 gallons of water through the system every minute.

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#### ELECTRONICS

## Throat Microphone

**Highly sensitive to throat vibrations and insensitive to sound waves in the air, it is particularly suitable for use in noisy surroundings.**

► THROAT MICROPHONES, that reproduce speech by picking up the vibrations of the larynx instead of sound waves from the mouth, are particularly suitable for use in machine shops, airplanes, warships and other places with noisy surroundings, members of the American Institute of Electrical Engineers were told by L. G. Pacent of the Pacent Engineering Corporation and E. H. Greibach of the Sonotone Corporation.

The throat microphone is a discriminating type of microphone, they said, because it is highly sensitive to vibrations transmitted to it by bodily contact with the sound-producing throat, but is quite insensitive to sound waves transmitted by air. It is comfortable to wear, does not shift out of position, and permits normal conversation to be carried on unrestricted to a degree not approached by any other form of microphone, they declared.

Throat microphones can be built on different principles, it was explained, according to the method used for the conversion of acoustic into electrical energy, such as carbon chambers, crystal microphones, and electromagnetic systems. Of these three kinds of elements, the scientists stated, the electromagnetic system is especially well suited to provide a high-articulation throat microphone.

The paper presented by Mr. Pacent and Mr. Greibach dealt technically with the theory and design of magnetic inertia throat microphones. Special attention was given to the treatment of sound power and high-articulation throat instruments. Because they operate while pressed against the human body, it is

necessary to enclose their working mechanism within a rigid housing to prevent external forces from affecting the air gap. For the same reason, they said, it also becomes desirable to use the inertia principle in the design of such microphones.

### Testing Bone Receivers

At the same meeting Mr. Greibach explained laboratory methods for the objective testing of bone receivers and throat microphones. The problem of building an artificial ear, he said, is relatively simple compared with that of constructing an "artificial mastoid" for testing bone conduction receivers, or an "artificial throat" for testing throat microphones.

The artificial throat must have a vibrating platform capable of imparting a velocity to a throat microphone through a filter simulating the layer of skin. The platform must be large enough, he stated, to make the microphone response independent of small changes of position of the microphone on its surface.

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#### MILITARY SCIENCE

### "Snakes" Cleared Trails Of Mines for Allied Tanks

#### See Front Cover

► DETAILS were revealed by the War Department concerning one type of the rumored Army "snakes" that were used in the European theater to cut wires and detonate enemy mines ahead of advancing Allied forces. The snake cleared a

trail wide enough for a line of tanks to move forward without danger of enemy land-mines. A "snake" is shown on the front cover of this SCIENCE NEWS LETTER.

This type of mine destroyer is a long metal trough, loaded with two parallel linear explosive charges encased between corrugated aluminum plates, bolted together to form a rigid assembly which can be towed or pushed by a light or medium tank. It is 400 feet long, 14 inches wide, five inches high, and weighs about 9,000 pounds, approximately half of which is its load of high explosives.

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The snake has a pear-shaped nose that guides it along and assures its passage over rough land. The nose is flexible enough to guide the snake over rocks.

Special elliptical explosive cartridges, used with the snake, were placed in the trough at intervals of about two and a half feet. They were exploded by an impact fuze which was detonated by machine-gun fire from the propelling tank.

These snakes were used mostly at night in order that they would not be destroyed by the enemy. They were assembled in the field, carefully camouflaged with grass and protected with sandbags, and pushed forward in the hours of darkness when the pushing tanks would be difficult to see. The snakes moved forward at a rate of about two miles an hour.

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#### AERONAUTICS

### Long-Range Research For Aerodynamics

► A LONG-RANGE research program has been started by the Army Air Technical Service Command at Wright Field, looking forward to both peacetime flying and air warfare of the future. It will be in such fields as the aerodynamics of supersonic speed, means of aiding the human body to stand the forces of such speeds, development of propulsive forces capable of supersonic flight and pilotless aircraft, the push-button warfare forecast for the future.

Devices to control robot bombs and other guided missiles from ground installations comprise another project in the present program. Still another is research to bring about a change in the "molecular structure of suspended moisture in icing clouds" so that this moisture, gathering on an airplane, can be turned into snow and thus add to safety and speed of flight.

Radio and radar equipment for traffic and landing will be included. Radio control mechanisms for pilotless planes, rockets and guided missiles, will receive special attention.

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It is roughly estimated that 10% of American crops are destroyed by insects.

The drying and curing of rubber by electronic heating is six times faster than conventional processes, and turns out better products because heat is generated uniformly throughout the material.

#### ENGINEERING

# Naval Vessels Preserved

Scientific methods include dehumidification and the use of film preservatives. Will be ready for quick return to duty.

► SCIENTIFIC METHODS will preserve naval ships on an inactive list, yet allow them at any time to make a quick return to duty, the American Society of Civil Engineers was told by Rear Admiral John J. Manning.

Preservation procedure now being followed, he told the engineers, "would insure beyond question that inactive vessels will be susceptible of quick recommissioning when necessary."

The modern techniques for preservation of ships include dehumidification, protection with film preservatives and plastics and other similar measures, he stated. The imperative necessity of maintaining inactive vessels in a much higher degree of preservation than was possible heretofore, he declared, was demonstrated by our experience in attempting to recommission hastily the World War I vessels which were loaned to Great Britain.

Admiral Manning explained that the Navy now plans to divide its postwar fleet into three basic groups. First would

be an active fleet, manned about 70% of war complement; a reserve fleet, manned at 30% of war complement and rotated periodically with the active fleet; and, third, an inactive fleet, to be fully decommissioned and placed in a state of preservation such that it can be reactivated when necessary. In addition, he said, a considerable number of obsolete combat vessels, surplus auxiliaries and landing craft will be disposed of.

### Waste Land Reclamation

► THE RECLAMATION of millions of waste acres, particularly in 17 arid or semi-arid western states, offers the opportunity to provide much-needed, fertile fields for the production of food required to keep pace with growing world needs, Kenneth W. Markwell of the U. S. Bureau of Reclamation declared at the same meeting.

There is a great need for rebuilding the soil, bringing under cultivation new



**BEFORE AND AFTER**—At the left the "Snake" is in position for clearing a path through a jungle mine field. Right: results of detonation of the "Snake." Official U. S. Army photographs.

acres that can be farmed economically, harnessing rivers for power, flood control and navigation, and in addition "utilizing to best advantage every drop of water in the West."

In contending that reclamation of the West is essential for a better-fed and healthier America, Mr. Markwell asserted that "conservative estimates based upon studies made by the U. S. Depart-

ment of Agriculture forecast the necessity for bringing about 40,000,000 new acres of land under cultivation by 1960 to replace marginal and sub-marginal land to meet the needs of a growing population and to supply normal export markets."

He advised civil engineers to "Go West" because of the opportunities in their profession.

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#### MEDICINE

## Facial Hemiatrophy Cause

Disease in which one side of the face withers is believed due to inborn weakness of the nervous system. No cure is known.

► ONE OF THE RAREST diseases of man, a "two-faces" malady in which one side of the face withers until it shows little resemblance to the other, is the subject of a new theory by Dr. Robert Wartenberg, neurologist in the University of California Medical School.

Disintegration of tissue, partial baldness and sometimes epilepsy are visited on victims of the disease, which is known as progressive facial hemiatrophy. Only about 500 cases are known to medical science.

The disease, for which no cure is known, is insidious, often progressing for years without the victim realizing its presence. A dimple on the forehead is often the first indication. Gradually it may deepen, with wasting of the side of the face, and bald spots may appear at the hairline.

Nervous disorders frequently accompany the early facial symptoms, but frequently years pass before the victim realizes he is afflicted with an incurable disease which has altered one side of his face almost beyond recognition.

Dr. Wartenberg believes that the disease is the result of an inborn weakness of the nervous system. Some medical men have expressed the opinion that hemiatrophy is caused by other diseases, such as encephalitis or typhoid, which it often follows.

But Dr. Wartenberg says that such diseases and even damage to the brain from serious accident are insufficient explanation for the slow, relentless degeneration found in facial hemiatrophy. The very rarity of the disease also rules out explanations which rely on diseases a great number of people have had. The neurologist suggests that contraction of

diseases such as encephalitis may provoke facial hemiatrophy in an already weak nervous system or speed up a case which has already been at work.

Hemiatrophy appears frequently at adolescence, which, like disease, places greater demands on the nervous system.

Dr. Wartenberg suggests that the disease is due to a spontaneous degeneration of the higher brain centers, which regulate the growth of and cement the two halves of the body and which provide nourishment to nerve tissue throughout the body.

Dr. Wartenberg says that the higher centers may be inherently weak, in which case they will usually function satisfactorily if the body is healthy and is not subjected to additional strains of disease or accident.

But under the greater demands of such emergencies as disease, or sometimes adolescence, for more nourishment of the tissues, the inherently weak nervous system breaks down and facial hemiatrophy results.

While his theory is not provable at the present time, Dr. Wartenberg says it seems the most likely from the evidence presently at hand.

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#### HORTICULTURE

## Water-Lily and Violet Among Plant Patents

► OUTSTANDING among recent plant patents is No. 666, a beautiful hybrid pink water-lily originated by Perry D. Slocum of Cortland County, N. Y. Its pointed petals are deep rose pink at the base, passing to almost white at the tips. The flowers remain pink for five days

after cutting, whereas previously known pink water-lily varieties fade to a dirty white on the second day.

Another beautiful flower, on which plant patent 671 was granted to Frank Rourke of Westfield, Mass., is a hybrid violet, whose long-stemmed blossoms are as big as pansies and of an intense, deep purple. The plant produces strong runners which are important in its propagation, and is claimed to be very winter-hardy.

Other plants on which patents were issued to breeders included a peach tree, an avocado tree, a hybrid tea rose and a carnation.

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#### BIOCHEMISTRY

## Stored Cereal Grains Protected from Spoilage

► A CHEMICAL treatment of stored cereal grains and cottonseed to eliminate costly spoilage may soon become a common practice, Dr. Aaron M. Altschul declared at a section meeting of the American Chemical Society at College Station, Texas. This advance, he said, is indicated by recent developments in the study of plant hormones.

Dr. Altschul is a biochemist in the New Orleans southern regional research laboratory of the U. S. Department of Agriculture, where intensive study is being given to methods of preventing deterioration of seeds during storage. It is an important problem because considerable spoilage takes place between harvesting and consumption, particularly in climates of relatively high temperature and humidity.

Although many factors influence biochemical activity in seeds, he said, moisture is by far the most important because it affects seed respiration and the resultant production of heat. Attempts to define safe moisture limits for seed storage have failed because conditions of growth, maturity and harvest also affect the subsequent behavior of seeds.

"The development of our knowledge and use of plant hormones gives us every reason to believe," Dr. Altschul declared, "that biologically active agents will be found which will either hasten the completion of maturation even under adverse weather conditions, or will compensate for incomplete maturation by temporarily inhibiting the biological processes in seeds, so that they may be safely stored without loss of viability or of usefulness as a food or for industry."

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ELECTRONICS

# Locates Survivors at Sea

**TNT charge exploding 3,000 feet under water operates hydrophones at shore stations. Can find men within a square mile of sea as far as 2,000 miles from shore.**

► "SOFAR," an underwater sound system developed by the Navy in cooperation with Woods Hole Oceanographic Institution, makes it possible to locate air and ship survivors far at sea. The system utilizes a TNT charge dropped underwater by the survivor and timed to explode at a depth of 3,000 to 4,000 feet, which sets up underwater sound waves that are picked up by hydrophones at shore stations. Survivors can be located within a square mile of sea as far as 2,000 miles from shore, it is claimed.

To determine the location of the survivor the underwater sound waves must be picked up by three widely separated shore stations, using hydrophones at the same depth. By comparing the times when the signal is received and then referring the differences to special charts, station operators are able to plot the position of the explosion within a few minutes after the most distant station receives it.

The new system's name, "SOFAR", has no relation to the great distance through which it can be used, but comes from the initial letters of the phrase "Sound Fixing and Ranging." SOFAR depends upon an underwater sound zone, the existence of which was confirmed as a by-product of wartime submarine detection studies carried on for the Navy by Dr. Maurice Ewing while director of research in physics for Woods Hole Oceanographic Institution.

Dr. Ewing's studies, the Navy Department says, demonstrated that, as the result of a "speaking-tube" effect, sound travels amazingly far in the depth zone between 2,000 and 6,000 feet. During tests conducted in the Bahamas, sound within the zone was heard with useful intensity a distance of 3,100 miles.

No other man-made sound has ever been heard more than a small fraction of this distance, Navy officials declared. However, at a depth of 600 feet the TNT

bomb explosion could be heard for distances of only 100 to 300 miles.

Although the sound lasts less than a second at the point of explosion, it is heard for 24 seconds 2,000 miles away, the Navy states. The signal at the receiving hydrophones is likened to a kettle-drum building up to a sharp, grand finale. The sharp concluding sound makes possible time measurements within one-tenth of a second.

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RADIO

## German Submarine Menace Was Lessened by HF/DF

► THE GERMAN submarine menace in the Atlantic was greatly lessened by the use of a network of high-frequency radio direction finders housed in stations along the coastline on both sides of the ocean and on mid-ocean islands, it has been revealed by the U. S. Navy Department. Cruising warships in the Atlantic were equipped with similar apparatus.

German U-boats long followed a practice of coming to the surface at night to report on their high-frequency equipment to their headquarters at Lorient, France. When one of these broadcasts was picked up by one of the Allied radio listening posts, the station immediately alerted all other Allied stations, giving them the submarine's radio frequency.

All stations immediately tuned to this frequency and each adjusted its direction finder receiver for maximum volume. A device attached to the receiver indicated the direction from which the submarine's broadcast came. This direction, or bearing, was immediately sent to a "net control station" which forwarded the information to a plotting center at Washington. By plotting the directions on a chart the probable location of the enemy craft was determined. In a matter of minutes a "killer" group of escort carriers and destroyers was on the way to attack.

This high-frequency radio direction finder system was known technically as HF/DF. The Atlantic operations were conducted by a network of American, British and Canadian stations which were grouped into nets for convenience in operation and efficiency in communications. Each net had its own internal communication system with external radio communication from the net control station to the main plotting centers at Washington, London and Ottawa.

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**SPOTTED SUBS—Equipment for locating the source of high frequency radio transmissions played a major role in defeating the German submarine menace. Direction finders at coastal stations and on board ships proved capable of pinpointing the exact location of any submarine using high frequency transmissions. Official U. S. Navy photograph.**

## CHEMISTRY

**DDT in Soap Keeps Dogs Free of Fleas for Months**

► DDT IN DOG SOAPS promises to eliminate the flea problem altogether, if experimental results published in the British scientific journal, *Nature* (Dec. 22), are borne out in general practice.

Three experimenters connected with commercial firms took a tip from the fact that DDT-treated clothing retains insect-banning powers even after several washings. They incorporated DDT in ordinary household soap, and used it in washing 12 dogs, all of long-haired breeds and all infested either with fleas or dog lice. Not only did the vermin all die promptly, but the animals did not become re-infested, though all were exposed. Only one of the dogs picked up a few fleas nine weeks after treatment.

Analysis of samples of hair clipped from the dogs, after washing with DDT soap and rinsing, indicated DDT concentrations of from five to seven hundredths of one per cent. "It is surprising," the experimenters comment, "that these minute amounts of DDT should give such a lasting effect." However, they also call attention to the insecticidal power remaining in clothing that shows only a hundredth of one per cent content of DDT.

The experimenters reporting are G. A. Campbell of the Geigy Company, Ltd., F. C. Hymas of Spratt's Patent, Ltd., and T. F. West of Stafford Allen and Sons, Ltd. The Geigy Company, Ltd., has applied for a British patent on the use of DDT in dog soap.

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## CHEMISTRY

**Nylon Has Many Uses In Addition to Hosiery**

► TO THE USE of nylon for hosiery, many additional uses may be added. It was extensively employed during the war for naval rope, glider lines, paintbrush bristles and many other purposes. Now the material will be employed in making unbreakable tableware, drinking cups, combs, and articles too numerous to mention. Its strength, toughness and elasticity are responsible.

Those who think of nylon primarily as a yarn for hosiery are due for many pleasant surprises, Dr. W. W. Heckert of the du Pont Company declared at a recent section meeting of the American Chemical Society in Columbus, Ohio.

He pointed out that nylon had scarcely been introduced into the hosiery field when it was switched entirely to war uses. Dr. Heckert is a scientist of the company.

That nylon was developed in the first place, he said, is a tribute to the persistence of scientific workers who conducted the long-range fundamental research program responsible for the product. The program was begun in 1928, he explained, and was designed primarily to obtain basic knowledge about chemical materials and processes, with no thought that the information so developed would be of immediate practical value.

In 1938, the company announced the development of new synthetic materials from which textile fibers stronger and more elastic than any previously known could be spun. There still remained the tasks of producing yarn and the necessary machinery, and to put the yarn to practical application.

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## ENGINEERING

**New High-Efficiency Fluorescent Lamp**

► THE WESTINGHOUSE Electric Corporation is assignee of two new patents on lamps, Nos. 2,392,305 and 2,392,333 respectively. The first is on a high-efficiency fluorescent lamp, developed by Dr. N. C. Beese of Verona, N. J. It is shaped like the ordinary incandescent bulb and utilizes arsenic instead of mercury to produce the ultraviolet radiations that produce visible light when they strike the phosphor minerals distributed on the inside of the outer glass envelope. With the use of zinc cadmium sulfide as phosphor, a continuous spectrum, closely approximating daylight, is obtained. Another advantage is efficient operation over a wider temperature range than is possible with the familiar mercury lamps.

The second lamp, devised by Chalmers Morehead of East Orange, N. J., made its bow to the public only a short time ago, as the fluorescent bulb for Christmas-tree illumination. This little lamp is cooler in operation, and hence consumes less current; it gives more pleasing color effects than are obtainable with colored glass or filters; finally, if one unit burns out it does not extinguish the whole series, as is the case with the older incandescent Christmas-tree lamps.

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## ENTOMOLOGY

**Carbon Dioxide Is Best Anesthetic for Insects**

► CARBON DIOXIDE, the gas that puts the fizz in soda-fountain drinks, as well as the head in beer, has been found better than ether as an anesthetic for use on insects being subjected to delicate surgical procedures needed in certain types of research, reports Dr. Carroll M. Williams, Harvard University research fellow. (*Science*, Jan. 11)

Dr. Williams describes a very simple operating stage which he uses in his work. It consists merely of a porcelain funnel with a perforated plate across its bottom. The spout of the funnel is attached to the outlet of a carbon dioxide cylinder, and the funnel itself is set into an opening in the laboratory table so that the operator can observe his work through a dissecting microscope.

Since carbon dioxide is heavier than air, it tends to stay within the funnel, and is not too rapidly carried off by stray air currents. Unlike ether, it has no odor, and in low concentrations does not affect the experimenter. Insects recover rapidly when it is turned off, and seem none the worse after even prolonged anesthesia.

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## CHEMISTRY

**Featherweight Material Has Enormous Strength**

► A NEW featherweight construction material of enormous strength is announced by the Glenn L. Martin Company and also by the U. S. Plywood Corporation. It is predicted by these two companies that the new material will revolutionize construction techniques in the whole field of transportation.

It is made of a newly-developed "honeycomb" of cloth or paper sandwiched between and firmly bonded to thin sheets of aluminum, stainless steel, wood veneer or plastic. It is claimed that the new sheets are far stronger than anything at the same weight now being manufactured. A practical method of bonding the metal or veneer sheets to the honeycomb makes the new product possible.

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IN SCIENCE

# SCIENCE FIELDS

## PALEONTOLOGY

## Bulldozer Makes Possible Quick Rescue of Fossils

► A BULLDOZER, husky wartime pet of Army Engineers and Navy Seabees, demonstrated its value to peacetime science when a new flood control dam on the Licking river threatened to wipe out a valuable fossil bed at Lower Blue Licks Spring, Dr. Willard R. Jillson, consulting geologist of Frankfort, Ky., reports. (*Science*, Jan. 11)

To demonstrate that great quantities of scientifically valuable fossils are still embedded in the Ice Age deposits at the site, Maj. Victor K. Dodge of Lexington, a well-known amateur naturalist, personally sponsored a "quickie" exploration. A bulldozer rapidly stripped off the non-fossil-bearing three feet of recent top soil, gravel and loose limestone. Then the diggers went to work with hand tools.

They found bones and tusks of a mastodon, skulls and other bones of extinct giant bison, and what appears to be part of the jawbone of a giant Ice-Age beaver, first to be recognized at this locality. The fossils were removed to the museum of the University of Kentucky, where they have been cleaned and placed on exhibition.

After the fossils had been dug up, the bulldozer went to work again, refilling the excavation. All the work was accomplished during one day.

*Science News Letter, January 26, 1946*

## PHYSIOLOGY

## Thoroughbred Horses Have More Hemoglobin

► THOROUGHBREDS really do have blood that is different from that of other horses, investigations by Dr. John Macleod of Cornell University Medical College and Dr. Eric Ponder of the Nassau Hospital at Mineola, N. Y., have shown. (*Science*, Jan. 18).

The two scientists counted red corpuscles and measured the oxygen-carrying hemoglobin in blood samples from thoroughbred and draft-type, or "cold-blooded," horses. They found that the thoroughbreds have smaller red cells than the cold-blooded horses, and that the hemoglobin concentration in

their cells is lower. However, the thoroughbreds have so many more red cells per cubic millimeter of blood that the actual quantity of hemoglobin per unit volume is larger in the race horses than in their heavier, slower brethren.

Drs. Macleod and Ponder are inclined to believe that the difference is hereditary, rather than the results of training or conditioning processes which prepare thoroughbreds for racing. This supposition is supported by the fact that the blood differences noted hold good for thoroughbreds at all ages, even for newly foaled colts.

"It may very well be," they state in conclusion, "that the increased hemoglobin content and slightly smaller cell size confer an advantage on the thoroughbred when running at high speeds, and so these may be characteristics which have become accentuated in the process of the improvement of the breed."

*Science News Letter, January 26, 1946*

## PHYSIOLOGY

## Electric Eel Has Used Radar Principle for Years

► THE ELECTRIC EEL has used principles somewhat similar to radar for millions of years to locate living food, Dr. C. W. Coates of the New York Zoological Society demonstrated at a recent meeting of the organization. The eel has two kinds of discharges, he showed, or: to determine the presence of fish, frogs or other animals, the other to stun or kill the prey.

In the muddy South American streams where they live, electric eels send out frequent electric impulses which, striking such food possibilities as other fish or frogs, bounce back and affect the senders' sensory apparatus. Having detected food or sensed an enemy, the eel discharges a shock of several hundred volts, sufficient to stun or kill almost any animal in the vicinity.

The demonstration given by Dr. Coates was an enlargement of previous shows, made possible by the use of war-developed equipment. He used an oscillograph and a special projection lens. With these the exploratory impulses and the lethal shocks were shown on a large screen in impressive wave forms.

In the demonstration two electric eels were used. They were in a water-filled tank about six feet long, with conducting screens of electrodes at both ends. The eels were about four feet in length. He showed the intensity of their discharges by lighting 33 two-watt neon lamps.

*Science News Letter, January 26, 1946*

## GENERAL SCIENCE

## \$1,000 Award for Best Science News Writing

► SCIENCE NEWS writing, the bridge between highly specialized research and general public understanding, is to be the subject of formal and substantial recognition by the American Association for the Advancement of Science.

A fund, known as the George Westinghouse Science Writing Award Fund, has been established by the Westinghouse Educational Foundation, which will provide an annual prize of \$1,000 to be given to a newspaper writer for outstanding science reporting. There will also be an annual citation to the newspaper whose science news coverage in the preceding year is adjudged most complete and authoritative and most interestingly presented.

The first annual awards, covering the present year, will be made at the mid-winter meeting of the Association, to be held in December, 1946. Details of judging and presentation will be announced at the spring meeting of the Association in St. Louis, March 27 to 31.

*Science News Letter, January 26, 1946*

## PHARMACY

## Worked 24 Hours a Day On Antimalarial Drug

► FOR A THREE-WEEK period, chemists at the University of Illinois worked 24 hours a day, in three shifts, to speed production of a chemical needed for making the new antimalarial drug, SN 7618.

The chemical is 4,7-dichloroquinoline. An original and simple method of synthesizing it was worked out by two of the university's scientists, Prof. Charles C. Price and Royston M. Roberts, in August, 1944.

Development of this simple method of synthesis made possible large-scale commercial production of SN 7618. Lack of such a method caused German scientists, who had also developed SN 7618, to discard it as an antimalarial.

The existence of SN 7618 was kept secret until the first of this year (Jan. 4), when the Board for the Coordination of Malaria Studies announced that it had been developed and found much superior to atabrine for suppressing malaria. Its chief advantages are that it need only be taken once a week, instead of daily, to suppress malaria attacks and that it does not turn the skin yellow.

*Science News Letter, January 26, 1946*

## ASTRONOMY

# Quadruplets in the Sky

**Mars and Saturn join Castor and Pollux on February evenings. Jupiter is visible late at night on the first, and earlier at the end of the month.**

By JAMES STOKLEY

► THOUGH ONLY MARS and Saturn, the same two planets that have been decorating the evening skies all winter, are now visible at a respectable hour, a third planet which is brighter than either comes up a little later in the night. This is Jupiter, and about Feb. 1 it appears a little to the south of the east point around midnight. It is in the constellation of Virgo, the virgin, and is close to Spica, brightest star in the figure. At the end of February it will rise about 10:00 p. m.

Mars and Saturn are close together in the constellation of Gemini, the twins, and with Castor and Pollux, the brightest stars, make it temporarily quadruplets. For recent months both of these planets have been moving in a "retrograde" or backward direction. That is, their path through the sky among the stars has been toward the west, because the earth has overtaken them, producing the same effect observed when an automobile overtakes a horse and carriage: to people in the auto, the other vehicle seems to be going in the opposite direction. On Feb. 21, however, Mars is stationary in the sky, and after that it will move toward the east once more, on the 19th of March passing Saturn, which will itself stand still and start to move eastwards a day later.

### Sirius Is Brightest

The positions of the February evening stars and planets are shown on the accompanying maps, which are drawn for about 10:00 p. m., your local time, at the beginning of the month, and an hour earlier on the 15th. Most brilliant object shown is the Star Sirius, in Canis Major, the great dog. This star is brighter even than Mars or Saturn. It is not quite as bright as Jupiter, though when that planet appears it will look fainter because it is so low in the sky and its brilliance is dimmed by the passage of its light through a great thickness of the earth's atmosphere.

Sirius is directly south, and above it

are a number of other prominent constellations. To the right is Orion, the warrior. Three stars in a row mark Orion's belt. Above the belt is Betelgeuse and below is Rigel. Also above the belt, though not classed as first magnitude, is Bellatrix, a star, which, like Betelgeuse, is supposed to be one of the giant's shoulders. On the old star maps where these fanciful figures were depicted around the stars was also an uplifted club, to the right of Bellatrix, which Orion is using to protect himself from the charging bull, Taurus, the constellation next above and to the right.

Aldebaran, red in color, forms the bull's eye, and the V-shaped group of stars, of which it is part (called the Hyades), his head. The two stars above Orion, towards Auriga, the charioteer, are the tips of the horns. In Auriga itself, almost overhead, is first-magnitude Capella. Gemini, the twins, are above and to the left of Orion, and this group can now easily be found because of the bright planets that it contains.

Below Gemini is Canis Minor, the lesser dog, with the star Procyon. About as high as Canis Minor, toward the east, is Leo, the lion, containing another star of the first magnitude, called Regulus.

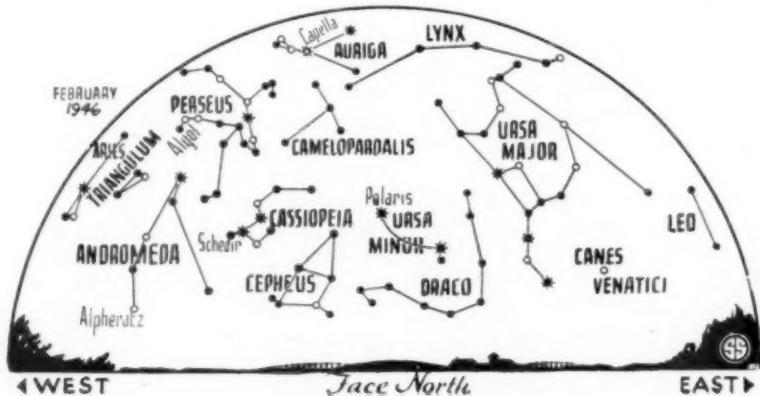
During the earlier part of February, the moon will pass through the part of the sky we have been describing. New on Feb. 1, it will appear a couple of days later in the west as a narrow crescent seen just after sunset. On Feb. 8

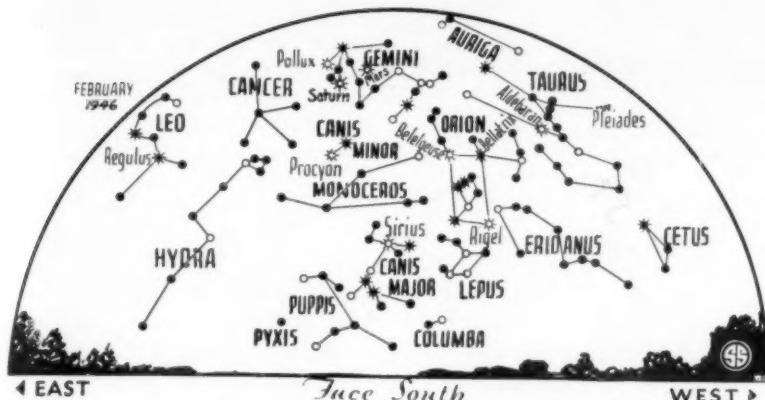
it reaches first quarter and a few days later, during the night of Feb. 12, passes Mars and then Saturn. Feb. 15 brings full moon, and on the 20th, during daylight hours for the United States, it passes Jupiter. The other naked eye planets, Mercury and Venus, are not visible in February. In fact, on Feb. 1, Venus is in line with the sun and beyond it, and on Feb. 10 Mercury is in a similar position.

The apparent movement of the sun around the sky during the year is an effect of the earth's motion around the sun, so that at different times it stands against a different background of stars. This also causes the general easterly movement of the planets, though they are moving themselves, and the combination of their motions with that of the earth produces the complicated paths, sometimes westerly but mostly easterly, that they pursue.

### Apparent Motion

Even more familiar is the daily motion of the whole sky from east to west, which makes the sun, and most of the other heavenly bodies, seem to rise and set as well as to travel across the sky. This again is merely an apparent motion, for it is the earth turning on its axis from west to east that causes it. Consequently, the stars seem to turn around a center in the north, which is the north celestial pole, the place where the earth's axis, if extended, would touch the sky. Polaris, the pole star, is very close to this center and so it turns in a small circle each day. Other stars, farther from it, turn in larger circles, an effect that can easily be shown by taking





\* \* \* • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

a photograph at night, with the camera pointed to the northern sky, and giving an exposure of several hours.

If a person were to stand at the north pole of the earth, the north celestial pole, of course, would be directly overhead. Traveling southward (which is the only way one can travel from the north pole!) the celestial pole descends, until at the equator it stands on the horizon. Thus, the height of the north celestial pole depends on the latitude of the observer. At the equator its altitude is zero degrees, and this is the latitude of the equator. In the United States, approximately 40 degrees latitude, the celestial pole is 40 degrees above the northern horizon.

Since the stars turn in circles about the celestial pole this means that for us any star or other object, such as a comet, that is within 40 degrees of the pole will never get below the horizon. In other words, for any place on the earth, in the northern hemisphere, there is a circular area in the northern sky, of radius equal to the latitude, in which the stars never set. At the north pole of the earth, where the latitude is 90 degrees, this includes the entire sky. There no star ever rises or sets. At the equator, on the other hand, every star rises and sets.

For us, the pole star and the constellation of Ursa Minor, of which it is part; Ursa Major, the great bear, which contains the Great Dipper; Cassiopeia, the queen; Cepheus, the king and Draco, the dragon, are all circumpolar constellations—ones which never descend from the sky. Stars farther south do rise and set, and the farther south they are the shorter is the time in which they are above the southern horizon. And finally, around the south pole of

the sky, which is as far below the southern horizon as the north celestial pole is above it, there is another circle of stars which never rise. Among these are the constellations of Crux, the southern cross; Centaurus, the centaur, containing the nearest star, alpha Centauri; and much of Argo, the ship, which is the largest constellation in the sky.

Argo is so big, in fact, that it is subdivided into four parts. These are Puppis, the stern; Vela, the sails; Carina, the keel; and Pyxis, the compass. The brightest star in the whole group of figures is Canopus, part of Carina, which is far south and never rises for most of the United States. All of Pyxis comes above the horizon for latitude 40 degrees north, but only one star is bright enough to be indicated on these maps. This is alpha Pyxidis, of the fourth magnitude. Next to it is Puppis, of which a number of stars are shown, and which extends up alongside of Canis Major. This time of year is the best chance to see this group, for now it is in the evening sky. Part of Vela, just below Pyxis, gets above our horizon, but not far enough to be seen easily.

#### Celestial Time Table for February

Feb.	EST	
1	9:00 a. m.	Venus in line with sun on farther side
	9:56 a. m.	Moon passes Mercury
	10:38 p. m.	Moon passes Venus
	11:43 p. m.	New moon
8	11:28 p. m.	Moon in first quarter
9	5:00 a. m.	Moon nearest—distance 230,080 miles
10	9:00 p. m.	Mercury in line with sun on far side
11	3:00 p. m.	Jupiter starts westerly motion
12	9:24 p. m.	Moon passes Mars
13	4:20 a. m.	Moon passes Saturn
15	11:28 p. m.	Full moon
20	3:16 p. m.	Moon passes Jupiter
21	10:00 p. m.	Mars starts easterly motion
22	11:00 p. m.	Moon farthest—distance 251,214 miles
23	9:36 p. m.	Moon in last quarter

Subtract one hour for CST, two hours for MST, and three for PST.

## CHEMISTRY

## New Glasses Contain Little or No Silica

► NEW KINDS of glass made without the use of the ordinary glass sands employed for centuries, may become increasingly important as further developed particularly for service in optics, photography, enamels, glasses transparent to ultraviolet rays, and in special colored glasses.

These new glasses contain little or no silica, the substance long regarded as essential in glass-making, but are made with the use of phosphates, borates or fluorides, according to Dr. Frank L. Jones of Bausch and Lomb Optical Company, who discussed non-silica glasses at a section meeting of the American Chemical Society in Terre Haute, Ind.

Phosphate, borate and fluoride glasses, he says, resemble silicate glasses in general principles of chemical constitution, but differ from them and from one another in important chemical and physical properties. The non-silica glasses have already proven their value in the photographic field. For general use in the field of optical instruments, he states, it is likely that the glasses intermediate between the older silica glasses and the new non-silica glasses will be especially valuable.

Science News Letter, January 26, 1946

## HOME ECONOMICS

## Nuts Easily Cracked When Soaked in Salt Water

► NUT shells, particularly those of pecans, become soft and easy to crack when soaked in salt water for a few hours. The nut meats can then be easily removed whole, agriculture extension agents in Mississippi have found.

Science News Letter, January 26, 1946

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# Do You Know?

*Sharkskin* was used as an abrasive before sandpaper was invented.

*Arsenic compounds* have been used to supplement quinine in treating malaria.

*Tetanus antitoxin*, produced by a new method, will not cause the chills often accompanying use of this antitoxin.

*Petroleum* was used in Biblical days, it is said, for medical purposes, chiefly for wounds and skin infections, and was poured over camels afflicted with mange.

*Abaca*, from which Manila hemp is obtained, was never grown in the Western Hemisphere until the war cut off the Philippine product; now there are some 27,500 acres of abaca in Central America.

*Fog-making machines*, developed to hide military operations from enemy eyes, are being tested as a possible means for distributing insecticides over crop areas.

*Soybean* is now America's glamour crop, furnishing 13% of the total production of edible fats and oils, and being the largest single protein concentrate for feeding farm animals.

*Coal*, once regarded only as a source of heat and energy, is now a vital source of raw materials for nylon, synthetic rubber, chemicals and other products, and may, in the future, be the principal source of automobile fuel.

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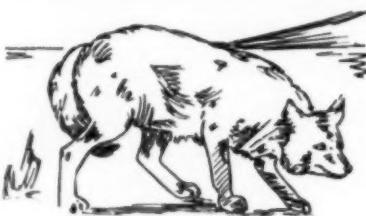
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Poor Relation

► WOLVES were very common throughout this country when white settlers first came; coyotes were confined largely to the untimbered regions west of the Mississippi. Now the wolves are practically all gone from the East and are scarce even in the West, whereas coyotes are still to be found (even if in diminished numbers) throughout their original range, and are even reported to be spreading eastward.

This vanishing of the strong and survival of the weak becomes a little less puzzling when one looks a little more closely at the habits of the two groups of animals, and especially when one takes into consideration the reaction of the dominant killer-species, man, to the twain.

Wolves were predominantly woodland animals: "timber wolf" was not an idly given name. Even the big lobo of the West, the so-called plains wolf, liked to lurk in the timber strips along the streams. That meant that as the East was stripped of its original mantle of forests there came to be fewer and fewer places where a wolf could live as a wolf likes to live.

The coyote, on the other hand, was less disturbed by settlement. He had always been used to more open country, so that the felling of the timber meant less hardship to him. Moreover, his original home was settled much later than the East, and still is more sparsely populated, so that he still has room to get around. His reported eastward rovings are understandable on this basis, too: the country has become much more open, so an open-country species can thrive in it.

Farmers and ranchers have always been more hostile to wolves than to coyotes. Wolves were really dangerous

to livestock, while coyotes lacked the strength and courage to tackle anything but stray young animals, and old ones about ready to die anyway. So wolves were harried by skilled professional hunters, while nobody bothered much about coyotes except to take offhand shots at them if they prowled too close to a ranch-house. If they did become too numerous, they were given the uncomplimentary treatment of traps and poison, rather than the honor of individual attention and persistent pursuit.

In general, wolves got the attention that proud aristocrats usually get from invaders: for the comfort and convenience of the newcomers they had to be eliminated. Coyotes, like inconsequential poor relations, could be tolerated; so they are still with us.

Science News Letter, January 26, 1946

### AERONAUTICS

## Lawrence Sperry Award Goes to Richard Hutton

► THE LAWRENCE Sperry award for 1945 will be given to Richard Hutton of the Grumman Aircraft Engineering Corporation for his notable contributions in the aviation development field. This award is made annually by the Institute of the Aeronautical Sciences for an outstanding contribution made by a young man to the advancement of aeronautics.

The award is an honorarium of \$250, in memory of the late Lawrence Sperry who lost his life in a forced landing in 1923 in the English Channel. Presentation will be made on Jan. 28 in New York.

Science News Letter, January 26, 1946

### METEOROLOGY-AERONAUTICS

## Meteorology Contribution Recognized by Award

► THE ROBERT M. LOSEY Award for 1945 of the Institute of the Aeronautical Sciences will be presented to Harry Wexler of the U. S. Weather Bureau, it is announced, for his outstanding contributions to the science of meteorology as applied to aeronautics.

This annual award was founded in honor of Capt. Robert Moffat Losey, a meteorological officer of the U. S. Army, killed in Norway on April 21, 1940, and who perhaps can be called the first American officer killed in World War II.

Science News Letter, January 26, 1946

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## AGRICULTURE

# New Tomato Variety

Specially bred for growing in lowland tropics, hybrid is now being supplied to Americans at tropical bases. Has been named "Turrialba."

► A NEW TOMATO variety, specially bred at the Inter-American Institute of Agricultural Sciences in Costa Rica, to produce well in the warm lowlands of the tropic zone, is now being used to supply American armed forces still on duty at overseas bases to the south, Joseph L. Fennell, chief of the division of food crops at the Institute, reports. (*Agriculture in the Americas*, Dec.) The new variety has been named "Turrialba", for the majestic volcano that dominates the terrain where the Institute is situated.

Breeding tomatoes for use in the tropics might seem a bit like carrying coals to Newcastle, for the tomato species is native to the warmer parts of the Americas. However, in its native form the fruit is a miniature, cherry-sized af-

fair—being commonly known, indeed, as the cherry tomato. All the big, firm-fleshed varieties have been bred for temperate-zone conditions, and extensive tests showed that none of these would do well in tropical climates.

A hybrid between one of the most southerly of temperate-zone tomatoes, known as Cuban Marglobe, with one of the larger-fruited strains of cherry tomato was therefore undertaken. The third generation of offspring, only 16 months from the original cross, proved good enough to be used for large-scale growing. Even of the first-generation cross, about 400 crates of the fruit have been purchased and distributed to American bases in the tropics.

The Turrialba tomato looks rather like its Marglobe parent, although it is a little flatter in shape. It produces large, firm-fleshed, smooth-skinned fruit, bright red throughout. Both plants and fruits are reported to have satisfactory resistance to plant diseases.

The plant breeders who produced the new variety are not yet well enough satisfied with it to offer seed for general planting. It is still so close to the original cross that undesirable traits of various kinds keep cropping up, which must be eliminated before it can be counted a full commercial success. Satisfactory stabilization of the variety's genetic characters should be accomplished within a relatively few plant generations.

*Science News Letter, January 26, 1946*

## SEISMOLOGY

## Earthquake Forecasting Lacks Scientific Basis

► EARTHQUAKE forecasts, though often made and as often accepted by the unwary, still have no scientific basis, declared Dr. James B. Macelwane, dean of the Institute of Geophysical Technology at St. Louis University.

"From time to time articles have appeared in the newspapers about men who claimed to have arrived at a complete solution of the problem of earthquake forecasting. They give you long lists of supposed verifications to prove the success of their predictions.

"Some forecasters base their predictions on the influence of the moon, others on the relative position of certain planets, others on sunspot activity, and no doubt there are persons entirely sincere who are allured and deceived by a specious theory and by a series of apparent verifications, but who lack sufficient scientific background to make a critical appraisal of the factors involved."

Highly generalized predictions for general regions where earthquakes are frequent cannot be considered real predictions, Dr. Macelwane pointed out. For example, to say that an earthquake will occur in Japan next week is a perfectly safe guess to make, for Japan averages about two dozen quakes every week; but such a statement has no value as a forecast.

To be really useful, the speaker insisted, an earthquake forecast must be specific, giving time, place and intensity; it must also be reliable enough to justify public authorities in preparing for the predicted disaster.

Seismologists have hopefully followed such leads as the claimed "bunching" of earthquakes in cycles, and their supposed association with earth creep and earth tilt, but none of these efforts has paid out with really reliable results.

Dr. Macelwane's talk was delivered during the intermission period in a concert of the New York Philharmonic-Symphony Orchestra. It was broadcast over the network of the Columbia Broadcasting System, under the auspices of the United States Rubber Company.

*Science News Letter, January 26, 1946*

## CHEMISTRY

## Seaweed Product Used In Waterproofing

► NEGLECTED and largely wasted resource, the giant seaweeds of the Pacific coast, supplies material for an improved bitumen waterproofing material, in the formula on which patent 2,393,022 was issued to three San Diego inventors, D. E. Clark, A. B. Steiner and K. F. Gibsen, assignors to the Kelco Company. In it, a salt of alginic acid (the seaweed product) is combined with asphalt, water and a copper-ammonium complex to form a solid, tough, non-tacky compound that is stable over a wide range of temperatures.

*Science News Letter, January 26, 1946*

The typhus epidemic of Naples in 1943 was the first to be stopped in winter; this was due to the use of DDT.



### HANDY EQUIPMENT FOR TEMPERATURE CHECKS

Measuring the temperature of a leaf surface, to determine the effect of insect feeding and of spray materials, is typical of hundreds of measuring and checking studies made at Ohio State University, for which equipment like that shown above is being used. This type of equipment is preferred where the temperature to be measured is that of a point or spot accessible to the tip of a fine-wire thermocouple.

Instrument shown measuring the emf of such a couple is a Portable Millivolt Indicator No. 8657-C, which has ranges 0-16 and 16-64 mv, and thus accommodates any couple across its entire range with good sensitivity and accuracy. Its price is \$145.00, complete with galvanometer, standard cell and battery.

If you will outline your temperature-measuring problem, we will be glad to recommend a suitable equipment.

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# Books of the Week

**THE ADVANCEMENT OF SCIENCE**—Vol. 3, No 11, *British Assn. for the Advancement of Science*, 66 p., 5s. Contains Science in Education by A. E. McKenzie; Producing Oils by Dr. G. D. Hobson; Plant Breeding and Genetics Today by Dr. P. S. Hud-sen; Science in Building by J. L. Martin.

**AMERICAN AVIATION DIRECTORY**—Wayne W. Parrish—*American Aviation Associates*, 649 p., \$7.50. Fall-Winter, 1945-46. Aviation officials and companies of U. S., Canada, Latin America, Africa, Europe and Australasia.

**BIOLOGICAL FIELD STATIONS OF THE WORLD**—Homer A. Jack—*Chronica Botanica Co.*, 73 p., diagr., \$2.50. Presents heretofore scattered and unpublished material; will aid in the selection of a station for study or research and will show directors of biological stations how their fellow-administrators are solving problems attendant upon the administration of these institutions.

**CHECK-LIST OF BIRDS OF THE WORLD**—vol. 5—James Lee Peters—*Harvard Univ. Press*, 306 p., \$5. Treats the following families: Trochilidae, Coliidae, Trogondiae, Alcedinidae, Todidae, Momotidae, Meropidae, Coraciidae, Léptosomatidae, Upupidae, Phoeniculidae and Bucerotidae. Gives description of the geographical range of each form and lists the more recent literature on each form.

**ELECTRON OPTICS AND THE ELECTRON MICROSCOPE**—V. K. Zworykin, G. A. Morton, E. C. Ramberg, J. Hillier, A. W. Vance—*John Wiley*, 766 p., diagr. and illus., \$10. Will aid the electron microscopist in understanding and utilizing his instrument to the fullest advantage and will assist the electron optical designer with practical and theoretical knowledge.

**FOREST PRODUCTS RESEARCH GUIDE IN FUNDAMENTAL AND APPLIED RESEARCH**—*American Forest Products Industries*, 142 p., \$2. Summarizes the sources of reliable scientific and technical information resulting from research in forest products and the further research needed to round out the knowledge of wood necessary for maximum wood products development.

**JOB AND THE MAN**—Luther E. Woodward and Thomas A. C. Rennie—*Charles C. Thomas*, 132 p., charts, \$2. Expert advice for employers and supervisors, especially those hiring veterans coming back nervous, written by men who have dealt directly with these problems.

**MAKING HEALTH VISIBLE**—*Board of Trustees of Cleveland Health Museum* 32 p., illus., 25 cents. A summary of original objectives, early and current organization, present status, description of exhibits, future aims of the Cleveland Health Museum.

**SURGICAL TREATMENT OF THE MOTOR-SKELETAL SYSTEM**—Frederic W. Bancroft and Clay Ray Murray, Editors—*Lippincott*, 1283 p., diagr. and illus., \$20 (two volumes). Designed for the use of the average general surgeon and orthopedic surgeon who has to deal with lesions involving the motor-skeletal system. Indicates what to do, how to do it, and what not to do for the various conditions affecting this system.

**TWENTIETH CENTURY SOCIOLOGY**—Georges Gurvitch and Wilbert E. Moore, Editors—*Philosophical Library*, 754 p., \$6. Emphasizing the major developments in sociological science in the present century. A collection of essays by Huntington Cairns, Pitirim A. Sorokin, Claude Lévi-Strauss, Robert E. L. Faris and many others.

**WE CAN HAVE BETTER SCHOOLS**—Maxwell S. Stewart—*Public Affairs Committee*, 31 p., illus., 10 cents. Important issues in post-war education. Public Affairs Pamphlet No. 112.

**THE WILDCATTERS**: an informal history of oil hunting in America—Samuel W. Tait, Jr., *Princeton Univ. Press*, 218 p., illus., \$3. The saga of pioneers of the oil industry, based on the author's years of work in the oil regions and on interviews with men who participated in discoveries which made oil history.

Science News Letter, January 26, 1946

#### ENGINEERING

### Crosley Car Runs 50 Miles On One Gallon of Gas

► **HIGH POWER**, light weight, low cost and economy in operation are features claimed for the new streamlined Crosley automobile by its maker, Crosley Motors, Inc. Although 28 inches longer, complete with an aluminum turret top, and having an engine twice as power-

ful as the prewar model, it will weigh no more than the old canvas-top car.

The new Crosley is capable of a top speed of 60 miles an hour, and it can run 50 miles on a single gallon of ordinary gasoline at 35 miles an hour, it is claimed. The use of aluminum in place of steel saves 200 pounds in weight. Its water-cooled engine is a 26-horsepower plant with four cylinders. The car is approximately 12 feet in length from bumper to bumper, has an 80-inch wheel base and a 40-inch tread. Its overall height is 57 inches. It seats four persons.

Science News Letter, January 26, 1946

#### AERONAUTICS

### Capt. Tribus Awarded Thurman H. Bane Prize

► **THE THURMAN H. BANE** award for 1945 will go to Capt. Myron Tribus of the Army Air Technical Service Command, it is announced by the Institute of the Aeronautical Sciences. The award is made "for reducing the icing hazards of high-speed flying through research and flight testing."

The Bane award, established in 1942, is given to an officer or civilian of the Army Air Forces Materiel Command for an outstanding achievement in aeronautical development during the year.

Science News Letter, January 26, 1946



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# •New Machines and Gadgets•

• STEPLADDER usable on uneven surfaces has an adjustable supporting rear frame. The two rear legs are connected by cross arms pivoted at the corners, which in turn are pivoted to a fixed downward-projecting center piece hinged to the top of the ladder. A thumbscrew holds the frame in position.

Science News Letter, January 26, 1946

• SOAP SHEETS are single layers of soap between two porous sheets of paper, and are for individual use to prevent the danger of transmitting skin diseases by the common use of a cake of soap. The paper, when wet, disintegrates and is carried down the drain pipe.

Science News Letter, January 26, 1946

• MECHANICAL SHAKER, called a test table, pitches and tosses packaged articles, giving them bumps and shocks similar to those they would get on a long railroad trip in a freight car. The device is used to determine proper packaging.

Science News Letter, January 26, 1946

• LEVERAGE screwdriver looks like the ordinary tool when its power arm is closed because the arm is shaped to fit over half the handle. The arm is pivoted at the shank of the blade and can be turned at a right angle and used as a lever to help turn a sticking screw.

Science News Letter, January 26, 1946

• COLD FRAMES for starting early vegetables are available in complete units that can be assembled with pliers and a



screwdriver. A section is shown in the picture. The frame is treated, painted steel, lined with Fiberglas for insulation. The cover is a wire-reinforced transparent plastic.

Science News Letter, January 26, 1946

• PROJECTOR-VIEWER has a tilting section that permits pictures to be projected on a built-in ground glass screen or on a conventional home movie screen. It is housed in a three-piece molded plastic case, and is designed to handle two-by-two inch kodachromes, black and white slides, and dental X-ray mounts.

Science News Letter, January 26, 1946

• NYLON drinking cups, available soon, can be dropped on the bathroom floor without damage and can be sterilized in boiling water or steam. The first-comers will be only in the natural color of the nylon, a translucent ivory.

Science News Letter, January 26, 1946

• ELECTRONIC INSTRUMENT determines the interior condition of non-magnetic metal tubes in heat exchange units. Its long, flexible probe cable is inserted within the tube. The instrument detects and records all types of irregularities in the tubes.

Science News Letter, January 26, 1946

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C., and ask for Gadget Bulletin 295.

## BOOKS

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## Question Box

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